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Notebook No. 2.

Jan. 1. 1872. Unalaska. Unalashka.
W. H. Dall, Actg. Asst. U.S.C.S.
In charge Schooner Humboldt.
Bearings all magnetic!

Monday, Jan. 1. 1872.

Weather.	Barom.	Thermometer			Wind.
Cloudy.	29.136	30	32	25	N W strong.

The wind blows very hard during both day and evening, making, however, but little impression on the ice which prevents our visiting the tide guage.

Tuesday, January 2.

Snowy	29.222	27	33	25	N W fresh.

Spend most of the morning getting to the tide guage, the bridge between it and the shore having been carried away by the ice.

Wednesday Janj 3.

Squally	29.150	30	30	24	N W Strong.

Ice little affected by the wind but apparently thawing slightly. Snowsqualls.

Thursday, Jan. 4, 1872.

Weather	Barom	Thermometer			Wind
Cloudy	29.340	25	32	23	N W strong

Some snow and a very steady wind but the ice yields very little and still covers the greater part of the harbor

Friday, Jan. 5. 1872

Snowy	29.264	22	25	19	N W strong

Ice disappearing gradually, very low tide at night and Snowsqualls all day

Saturday Jan. 6. 1872

Snowy	29.624	23	25	19	N W, puffy.

In P. M. the wind changes to W and finally S W. Snows. Evening calm

Sunday Jany. 7.

Snowy	29.500	27	27	16.5	S E puffy

Harbor again covered with slushy ice.

Monday. January 8.

Half clear.	29.528	27.5	32	25	S E variable

Fresh ice forming. Later in the day

the wind goes round to the N W and blows most of it out of the harbor Weather too cold and windy for observations

Tuesday, Jany. 9. 1872

Weather	Barom.	Thermom.			Wind.
Half clear	30.056	27	3 2 (x)	2 6 (m)	N. N W strong

Much ice still obstructing the harbor in spite of the high wind.

Wednesday, Jan. 10.

Cloudy	29.562	28	30	19	S E fresh.

Wind goes round to the S E and blows fresh at intervals. Ice interferes a good deal with getting to tide guage. P. M. calmer, tides very low.

Thursday, Jan. 11

Snowy	29.256	30.5	30.5	26	Light E

N W wind in P. M. Snowing lightly at short intervals. Slush ice forming.

Friday, Jan. 12

Snowy	29.233	24	34	23	Light W & S W

Cloudy, with snow.

Saturday Jan. 13, 1872.

Weather	Barom.	Thermometer			Wind
Stormy	29.256	25.5	x 26	n 20	SW light.

Snowing heavily. Mean temperature at this place for Oct. 71. 42°.5 Bar. 29.433 November 37°.95 Bar. 29.913, December, 33°.5 Bar. 29.640.

Sunday Jan. 14.

Snowy	29.222	22.5	28	18	S & N W strong

Cloudy with heavy snowfall. The Sch Lizzie Sha starts for Unga to bring coal and anchors in the outer harbor. Returns at night, finding windlass & hawse pipes defective so that she cannot go to sea.

Monday, Jan. 15.

Snowy	28.730	22.5	28	18	N fresh.

Very high tide, rises above guage to 9.5 on the staff. Small harbor covered with ice again but not very thick

Tuesday Jan. 16. 1872.

Weather	Barom.	Thermom.			Wind.
Variable	28.756	26.5	x 26.5	n 17.5	E Light.

Tide has been up to ten, on staff above limits of guage register. A heavy swell rolling in, probably the result of a heavy blow outside, which has shown itself here only by the low barometer of the last few days. Weather cloudy, P. M. heavy snowfall and large increase of ice in small harbor.

Wednesday, Jan. 17.

Stormy.	28.900	30	30	25	N E half gale

Half a gale of wind with blinding snow, continues all day and evening. Cannot visit tide guage.

Thursday Jan. 18.

Stormy	29.000	20	31	18	W fresh

Cloudy with snow and a fresh westerly wind. Ice mostly cleared away by the wind except some of the oldest and thickest.

Friday Jan. 19. 1872

Weather	Barom.	Thermometer			Winds
Stormy	29.154	19	max 29	min 16	NNW strong

Strong N N Westerly wind with clouds and a little snow. Wind works round to the S & S E by evening and the temperature rises

Saturday Jan. 20.

Variable	29.808	26	26	13	Variable

Morning clear, nearly calm, light S E air. Ice forming rapidly in small harbor. P.M. cloudy with fresh S E wind, later strong N E and N, the barom. rising with N wind to 29.930 Later N N W. A field of ice from the entrance of the harbor comes down on us by the run but our chains cut a clear passage through it and the vessel is but slightly chafed. About 8 P.M. barom. falls to 29.450 and a S E gale comes on with heavy squalls of half melted snow. Some old and heavy ice, a foot or more in thickness, gets adrift

and half of it passes out through the straits into Captain's Harbor. The other half goes ashore on Expedition 2d and on Amatenak N W of the tidegauge. At 11 P.M. the latter was all right, but the gale, increasing in fury rendered it impossible to reach the crib and remove the instruments, which I should have done if possible in anticipation of the ice carrying it away.

Sunday, Jan. 21.

Weather.	Barom.	Thermometer			Wind.
Stormy	28.840	38	40	30	Gale S.E.

This A.M. my apprehensions of last night proved too well founded. The ice overturned and crushed the crib and tidegauge house and carried the latter ashore in a wrecked condition. I go there immediately in the large boat and we succeed in fishing out the self registering gauge soaked with salt water and oil

from the float box. The only apparent injuries were the breakage of the pendulum and hour hand of the clock and some wrenching of the woodwork. The register of the last month though wet was safe, and still legible. The mercurial barometer still hung to its peg, but while unbroken was injured by water and air getting into the tube. The standard thermometer was safe. The minimum and Casella thermometers were so far under water that we could not reach them at that stage of the tide. The magnet, clockkey, box of pencils, and one of the weights of the tidegauge were missing. We brought the guage, thermometer and barometer aboard, and cleaned them as well as circumstances would admit. The gale, accompanied by heavy rain moderates toward evening and the barometer rises to 29.000.

Monday, Jan. 22. 1872

Weather.	Barom.	Thermometer.			Wind.
Stormy	28.912	40	44	36	SE gale

Early A.M. calm. cloudy. Hook on to the tidegauge house and succeed in towing it over the harbor to Capt. Hennig's wharf, where we propose to set it up until we go away, though it is not so good a place as the old one. About nine A.M a fresh breeze from SE increasing to a gale in P.M. and evening. Get the house on to the wharf and lash it in preparation for a more solid fastening when the storm stops work. Bar. rises to 29.140. Get the thermometers and other missing articles except the box of pencils which is gone. We shall have to manufacture some out of lead pencils. Everything is housed and soaked in seal oil.

Tuesday, Jan. 23. 1872

Rainy	29.900	39	39	33	S light

Early A.M. calm and cloudy with

a little rain. Gale ceased early in A.M. Later, fresh breeze with showers of rain at short intervals, cloudy and half clear by starts. P.M. go in search of the rock reported by Mr. Bailey, but the water is so high that we cannot find it. Evening Bar. 30.100. Ther. 38.

Wednesday, Jan. 24. 1872

Weather	Barom.	Thermometer			Wind
Stormy	29.585.	38	40	34	E & SE gale

Morning, gale, with snow which soon changes to rain. Moderates a little in the afternoon. Go ashore and set up tidegauge. but some missing weights must be replaced before we can set it going. Evening Bar. 29.252. Ther. 36. Raining hard.

Thursday Jan. 25.

Cloudy	29.602.	31	34	30	NW 3

Go to bench mark to establish height of water at new tidal station. The bench mark was six feet six inches above the water at the time the signal was given, and and at the

wharf the water stood at 8.45 on the staff, 31 inches below the floor of the tidegauge house. Set the pencil at this point, to obtain as nearly as possible the same conditions as those which existed previously at the other station. How well we have succeeded in this effort, time will show.

The priest whose experience in these matters, is large, informs me that the tide rips in the Aktutan and other passes occur about half tide, sometimes two three or even four times a day In Unimak Pass they occur only when NW or SE winds prevail. From Unalga Pass to Dlinlink is half a tide. The tide wave comes from the eastward, rounds Kalekhta Point passes to the west of Amakenak Island and east and north into Dlinlink Harbor I observed this morning that the current between ~~Dlinlink~~ Expedition Island and the

bench mark ran at the rate of a foot in two seconds near the shore and about half as fast in the middle of the passage. The falling tide passes south between Amaknak and Unalashka and out by the western passage.
P.M. go to flat between Middle Amaknak & Keystone Hill and to Fish Rock to take telemeter observations.
Hear rumbling noises apparently from Akutan volcano, during the day.

Telemeter observations.

From Fish Rock to	Wires	Reading	Vert.	Height	Distance m.	Bearing
x	B	41.5	0		41.805	S. 82 W
y	B	34.0	0		34.305	S 37 W
xx	B	138.0	9°.20'	21.549	136.544	S 40½ W
C	B	172.0	0		172.305	N 70½ E
D	B	154.5	3.45		164.155	S 3½ W
N flat Rock	L	170.0	0		339.271	N 32½ W
End of Fish Rock	B	6.0	0		6.305	E
E	B	22.0	17.15	6.524	21.315	N 26½ W
Beach	B	91.0	3.20		91.151	W
do near Δ D bluff	B	78.5	4.20		78.581	S 25 W?
outer point ditto	B	145.0	2.30		145.167	S 9 E

Fish Rock to	Wires	Reading	Vert	Meters	Height	Bearing
On beach in line C Δ	B	151	2.04	151.206		N. 70½ E
Beach	B	138	2.20	138.191		N. 51 E
"	B	180	1.23	180.253		N. 27¾ E
do in line with bluff	B	210	1.25	210.241		N 6 W
Beach	B	248	1.05	248.261		N 18¼ W
do in line N flat Rk	B	253	1.05	253.260		N 32¼ W
" " " middle	B	230	1.20	230.243		N 54 W
middle flat Rock	L	155	0.00	309.362		N 54 W
Beach in line S flat Rk	B	215	1.10	215.260		N 70½ W
Beach	B	160	1.15	160.267		N 74¾ W
Beach	B	138	1.25	138.253		N 86 W
From xx to						
Keystone Δ	L	177	8.15	349.576	50.641	S 65½ W
Farther brow ravine	B	141	1.15	141.271		S 49 W
Nearer " "	B	92	1.25	92.270		S 49 W
Δ O	B	138	9.45	136.312		N 41½ E
From x to						
y	B	29	0.0	29.305		S 42½ E
O	B	41	0.0	41.305		N 82 E
P	B	41.5	10.18	41.136		N 52 E
Beach	B	18	16.28	17.566		N 13¼ E
R	B	60	6.20	59.939		N 84 W
Shore S of R	B	41.5	9.53	41.189		S 84½ W
E part lagoon	B	46	8.53	45.753		S 49 W

To point SW of last, 108 B vert 3°.30' S 53½ W; 108.104m

To R near other station 58 B. vert. 6°.30' 57.932m

Evening light NW wind Bar. 29.500 Ther 34. Cloudy.

Friday Jan 26. 1872

Weather	Barom	Thermom.			Wind
Fair	29.286	35	41	24	SW equally

Tidegauge clock has stopped. Oil and set it going again. The new station the only one available is in a poor situation subject to jars and heavy surf. Noon, wind moderate with snow. P.M. clear and fine with fresh S and SW wind Evening fresh SE wind. Barom clr 29.330. Take the following telemetric observations on Amaknak Island. Station near mouth of Lagoon

Station occupied to	Wires	Reading	Vert	Meters	Bearing
R of yesterday	B	40.5	0	40.805	E
S shore of lagoon	B	72.5	0	72.805	S 12½ E
" " "	B	109.0	0	109.305	S 16½ W

Station to	Wires	Reading	Vert ° '	Height meters	Distance	Bearing
S. shore of lagoon	B	144.0	0		144.305	S 26 W
" "	B	186.0	0		186.305	S 44¾ W
" "	B	235.0	0		235.305	S 53. W
" "	L	150.0	0		299.392	S 66 W
N shore lagoon	B	30.0	0		30.305	S 6 E
" "	B	31.0	0		31.305	S 22 W
" "	B	40.0	0	Sunline with Δ Keystone	40.305	S 45 W
" "	B	55.5	0		55.805	S 66 W
" "	B	92.5	0		92.805	S 75 W
Small Reading Pt on N shore lagoon	B	130.0	0		130.305	S 69 W
Top of bluff (K)	B	143.0	8.15	8.107	143.075	S 75¼ W
Foot of hill on flat.	B	137.0	0		137.305	S 84 W
Middle flat Rock	B	220.0	2.10	8.317	220.148	N 33⅓ W
South " "	L	213.0	0		425.009	N 66 W
Δ K on bluff to			° '			
Middle small light	B	28.0	20.25		26.546	S 58½ W
Small bluff	B	42.0	8.40		41.825	S 56 W
Brow of hill N of last	B	73.0	2.40	3.396	73.226	S 78½ W
From last, to			° '			
Top of ridge	B	67.0	8.41	10.115	66.537	N 34½ W
Edge of bank	B	12.5	10.30		12.615	S
" " "	B	38.0	3.50		38.220	S 75½ W
W end of lagoon	B	113.0	4.25		112.972	S 74½ W
Rocky pt. S side lagoon	B	91.0	6.09		90.781	S 54 W
Bank beyond the last K	B	112.5	0.00		112.805	S 57½ W

Telemeter obs. cont.

From the last to	Wires.	Reading	Vert. angle	Meters	Bearings.
			° ′		
Bank (1)	B	50.0	0	50.305	N
" (2)	B	200.0	20.40	200.088	N 5° W
" (3)	L	80.0	0	159.818	N 75° W
From 3 to			° ′		
Bank (2)	B	74.0	10.00	73.181	N 9 E
Pt. on beach.	B	37.0	4.30	87.181	S 34 W
Water's edge.	B	30.0	14.00	29.414	W
" "	B	75.0	4.00	75.122	N 15½ W
From the last to			° ′		
South Flat Rock	B	200.0	0 0	200.305	N 24 W E
From last to			° ′		
Bluff	B	105.0	0 0	105.305	S 19½ W
"	B	107.0	0 0	107.305	S 13½ E
Highwater mark	B	19.0	0 0	19.305	N 33 W
From the last			° ′		
To bank	B	62.0	4.10	62.141	N 80½ E
From the last			° ′		
Foot of bluff	B	230.0	0	230.305	S 42½ E
To N flat Rock	L	160.0	0	319.331	N 75° E
Middle flat Rk	L	110.0	0	219.636	S 84 E
From N flat Rock					
To beach	B	127.5	0	127.805	N 56 W
Edge of flat	L	160.0	0	319.331	N 24 E

N Flat Rock to	Wires	Reading	Vert.	Meters	Bearing
			° ′		
Edge of flat	L	130.0	0	259.515	N 28¼ E
" "	B	240.0	0	240.305	N 5° E
" "	B	200.0	0	200.305	N 71 E
" "	B	180.0	0	180.305	E
Small point	B	187.0	1.40	187.226	S 64 E

Saturday Jan 27. 72

Weather	Barom	Thermom.			Wind
Stormy	29.538	32	43	31	SW variable

Morning moderate SW with heavy snowfall. As the clock will not go I remove it from the tidegauge and clean it and replace it in the afternoon setting it going. Noon high SW wind half clear, followed by snow and hail. Bar. 29.600. Evening beautifully clear & calm. Bar. rises to 29.800

Sunday Jan. 28.

Stormy	29.608	35	39	30	SE gale

Furious gale from SE with torrents of rain, increasing toward noon. Bar

falls to 29.400. This is the most severe weather we have yet experienced here. Later bar. 29.350. moderates a little and bar. rises. closing with fresh S wind and half clear sky-

Monday Dam 29.1872

Weather	Barom.	Thermom.			Wind
Half fair	29.683	34	44	32	fresh SW052

Early A.M. cloudy, with snow squalls from SW. Later, clears, with light S wind. Bar. rises 29.900. Go to Captain's Harbor to find the new ledge reported by Mr. Bailey.

From rocks on beach at Obernoi Pt. Station S 60 W of larger rock on beach 8.055 meters distant.

i end E Amaknak Rock bears N 2⅔ E
W " W " " " " 12⅔ W
Middle of W " " " " 10½ W

nearly in line with crest of Amaknak S but a little to the east of the latter.

Δ I N 7⅛ E Vern A 205° 34'.20"
B 34.40

Middle of Bailey's ledge bears N 9¼ W

(180 L) 359.21 m Vern. A. 189°. 08'.00"
" B 9. 08. 00

Inner edge do N 6¾ W (162 L) 327.32 meters
Vern. A 191. 42.00
" B 11. 42.00

Rocks on W pt. of Amaknak N 29. W
Vern. A. 169. 11. 00
" B 349. 11. 00

West Head Captain's Harbor N 42¾ W
Vern. A 155. 19. 20
" B 335. 19. 40

Leave station and go over on the west side of Captain's Harbor to sketch topography of Amaknak. Back by noon. The small rock between the two Amaknak rocks is about one third of the way from the west to the east rock, bare at very low water. The position of Bailey's ledge may be found by getting in range with the east Amaknak Rock and the black point (S of it) called Obernoi, and pulling toward the latter until the west Head of Captain's Harbor ranges with the boat and the first deep gulley

east of Observation Point. A few strands of kelp are in the water about the rock and will assist in recognising the locality.
P.M. go to the flat near the bench mark and take telemeter observations

△ F. to station	Wires	Reading	Vert.	Metres	Bearing
			° ′		
D	I	165.0	1 47	329.142	N 33 E
Bluff near Drain	B	205.0	2 45	215.069	N 19 3/4 E
Top of hill	B	128.0	20 40	120.068	N 37 1/4 W
Brow of next hill	B	141.0	13 05	137.645	N 71 3/4 W
Bottom of ravine	B	73.5	4 15	73.603	N 78 1/2 W
Pt. at waters edge	B	79.0	4 00	79.118	N 24 3/4 E
Bottom small bight	B	49.0	7 30	48.886	N. 17 1/2 E
rocky point	B	22.0	23 22	20.501	East
" "	B	29.0	10 40	28.804	S 8 3/4 W
Top of knoll	B	46.0	6 40	45.994	S 69 1/2 W
			° ′		
From last to					
Edge of bank	B	12.0	2 10	12.296	S 82 1/2 E
Rocky point	B	39.0	13 40	38.201	S 70 E
" "	B	64.0	10 40	63.199	S 3 W
Ridge (a)	B	55.0	5 50	55.020	S 50 W
"	B	71.5	0 0	71.805	S 85 3/4 W
Brow of hill	B	160.0	10 35	157.583	N 71 1/2 W

△ Top of knoll	Wires	Reading	Vert	Metres	Bearing
			° ′		
Ridge	B	112.0	2 40	112.184	N 88 W
Knoll	B	127.0	2 10	127.214	S 84 W
Top of ridge	B	161.0	0 0	161.305	S 73 W
Foot " "	B	149.0	2 10	149.202	S 68 1/2 W
Ridge (a)	B	61.5	5 30	61.522	S 13 1/4 W
			° ′		
Last to station					
Pt on beach	B	41.5	3. 0	41.748	S 45 W
Beach	B	71.0	3. 30	71.173	S 45 W
"	B	131.0	1. 50	131.238	S 33 W
"	B	187.0	1. 00	187.277	S 22 W
"	B	185.0	1. 10	185.267	S 14 W
"	B	195.0	1. 05	195.270	S 8 E
do (in line with F)	B	205.0	1. 00	205.269	S 17 1/2 E
△ F	B	215.0	00 00	215.305	S 17 E
Bank	B	103.0	00 00	103.305	S 41 W
			° ′		
From last to					
Foot of bluff	B	115	0 0	115.305	S 8 1/2 W
"	B	186	0 0	186.305	S 32 1/4 W
"	B	160	0 0	160.305	S 44 1/2 W
"	B	235	0 0	235.305	S 58 1/2 W
"	B	265	0 0	265.305	S 71 W
" (c)	B	193	0 0	193.305	N 59 3/4 W
"	B	99	0 0	99.305	N 34 1/2 W
Bank (b)	I	132	0 0	263.502	N 64 1/2 W
Keystone bears	—	—	13 — 00	341—339	N 15 1/2 W

Bank (b) to	Wires	Reading	Vert. °	Vert. ′	Meters	Bearing
Foot of bluff (c)	B	69.0	0	0	69.305	S 76 E
Bluff	B	44.0	0	0	44.305	East
"	B	22.25	0	0	22.555	N 26 E
"	B	49.0	0	0	49.305	N 40½ W
Beach	B	13.0	0	0	13.305	S 73 W
"	B	57.0	0	0	57.305	S 7 W
"	B	180.0	0	0	180.305	S 18 W
Hillock	B	190.0	0	0	190.305	S 6 W
Beach	B	223.0	0	0	223.305	S 23 W
"	L	147.0	0	0	293.411	S 28¾ W
"	L	195.0	0	0	389.119	S 34½ W
Foot of bluff	B	134.0	0	0	134.305	N 43½ W
Last to			°	′		
Foot of cliff.	B	30.5	0	0	30.805	N 17¼ W
Last to			°	′		
Beach	B	21.5	0	0	21.805	N 9½ E
Last to			°	′		
End of gully	B	340	7.	25	34.021	N 52 E
Beach	B	51.5	0	0	51.805	N 6¾ E
Beach	B	21.0	0	0	21.305	N 4½ W
Last to			°	′		
Rocky point	B	51.0	0	0	51.805	N 55 W
Foot of do	B	29.5	7.	50	29.580	N 34¼ W

From last to	Wires	Reading	Vert. °	Vert. ′	Meters	Bearing
Beach	B	17.0	6	30	17.196	N 69½ W
"	B	36.0	3	00	26.256	N 8¼ W
Foot of bluff	B	47.0	0	0	47.305	N 23½ E
Beach	B	81.0	1	10	81.288	N 14 E
From last to			°	′		
Beach	B	27.0	1	40	27.294	N 33½ E
Bank	B	90.0	0	0	90.305	N 20 E
Foot of bluff	B	125.0	0	0	125.305	N 8 E
Water's edge	B	10.5	0	0	10.805	N 62½ W
Bank	B	22.5	0	0	22.805	S 2½ E

Visit tidegauge which is still out of order. Take off the face and hands and start the rest. The wind gets round to SE. Bar. 30.032 Calm & cold. Small Harbor freezing over.

Tuesday, Jan. 30.

Weather	Barom.	Thermom.			Wind
Stormy	29.838	35	45	24	SE gale

Visit the gauge which is going for the first time in a week or since the wreck of the old crib. Cloudy strong SE wind with squalls all

day, increasing in evening. Barometer goes down to 29.652. by 9 P.M. with rain, hail, and a gale blowing.

Wednesday Jan 31. 1872

Weather	Barom.	Thermom.			Wind
Stormy	29.658	41	41	34	SE 6

Storm still continues with torrents of rain but less wind. P.M. Rain & wind diminish. Bar. 29.868.

Thursday, Feb. 1. 1872.

Rainy	29.648	37	37	34	SE 5

Tide guage still running, but with the face and hands of the clock removed. Find the level (as shown on the register) about one twentieth of a foot lower than at the other station, but must wait for a calm day to rectify it. Storm from SE with torrents of rain. Work on current chart. P.M. moderates a little. Go round on the West side of Amakuak Id. as far as the needle rock; and find that the low (S) end of Hog Id. covers the East

Head of Nateekin Bay, while the outline of the island, on the charts, is quite erroneous. The ledge near Station D, from station C ranges with the west end of Expedition 2d, while from K it is in line with the low place between Fish Rock & Δ D bluff. Evening bar. 29.850

Friday, Feb. 2

Weather	Barom	Thermom			Wind.
Stormy	29.962	35.5	38	33	SE squally

Rainy & cloudy. P.M. more moderate, rainy. Bar. goes up to 30.065 in evening

Saturday, Feb. 3.

Rainy	30.060	36.5	37	33	ESE squally

Rainy with high squalls at intervals. P.M. moderates a little, Go ashore & make the following Telemeter observations.

From Δ E to	Wires	Reading	Vert.	Meters	Bearing
West	B	214	2.55	214.028	S 7.51 E
NW rock off Exp. 2d	B	170	0. 0	170.305	S 74½ E
Outer N edge of islet bears					S 80½ E

Δ E to station	Wire	Reading	Vert.	Meters.	Bearing.
Rocky point	B	134	° 1 ′ 30	134.259	S 65½ E
Top of bluff	B	150	1 20	150.264	S 63½ E
Foot of gulley	B	146	1 20	146.265	S 48 E
End of reef	B	178	1 25	178.250	S 34 E
Top of bluff	B	182	0 0	182.305	S 40½ E
From Δ F to			° ′		
Outer rock	B	211.0	1 30	211.233	N 22½ E
End S W reef	B	162.0	2 10	162.189	N 34 E
Foot of bluff	B	182.5	2 10	182.679	N 50½ E
Rocks " "	B	215.0	1 30	215.231	N 58½ E
" " "	B	245.0	0 0	245.305	N 66 E

Driven in by tremendous squalls of wind & rain. Wind casts to E by E
Bar. 30.050

Sunday Feb. 4. 1872

Weather	Barom.	Thermom.			Wind
Raing	29.802	36	37	33	E by S fresh

Cloudy, raing & snowing -

Monday Feb. 5. 1872

Stormy	29.520	36	37	33	S E 6

Rain, hail and high S E wind, which gets more toward the N in P.M.
From the church the end of the reef out of water off Rocky Pt. station at lowest tides, ranges with Ulakkta Δ; and from the next warehouse beyond the new store of H.K.& Co. with Spithead. Rumbling noises from Akutan volcano, one with a slight jar, heard during the day.
Evening E.S.E half a gale of wind. rain &c. Bar. 29.442

Tuesday, Feb. 6, 1872

Weather	Barom.	Thermom			Wind.
Stormy	29.300	37	40	34	N E. 7

Gale continues all day. cannot get to tidegauge. P.M. Bar. 29.322

Wednesday, Feb. 7. 1872

Stormy	29.322	37	38	33	N E gale.

Cloudy, wind a little more northerly & rain ceases. Tidegauge stopped from the wind beating rain through crevices & wetting the paper. Evening - wind in the old quarter with rain, sleet & snow. Bar. 29.330.

Thursday Feb. 8. 1872

Weather	Barom	Therm.			Wind.
Stormy	29.438	38	38	33.5	E S E squally

Wind fresh all day with rain & squalls. The sun breaks through for a moment once or twice. Telegraph stopped again from the same cause as yesterday

Friday. Feb. 9. 1872.

Half fair	29.732	36	39	32	E N E fresh

A.M. Half cloudy, wind fresh. Some snow last night. Wind shifts to the north about 9 A.M. and the weather clears. Go to Spithead to take angles but the wind is so high that we can do nothing at it. P.M. take the following telemetric measurements in Dunlink Harbor. 5 P.M. Wind N W mod. 9 P.M. Bar. 29.850

Bury two therm. near △C to get temperature of soil.

From △C to	Wire	Reading	Vert. ° ′	Meters	Bearing
Bottom of gulley	B	30.5	5 . 0	30.689	N 37½ E
Bluff beyond	B	60.5	2 . 0	60.768	N 53¾ E
△B	B	135.0	0 . 0	135.305	N 63 E
Hill behind B	B	132.0	5 . 15	131.751	N 49⅓ E

Hill behind B to	Wire	Reading.	Vert. ° ′	Metres.	Bearing.
B	B	37.0	17. 35	33.929	S 49 E.
Bottom of gulley	B	32.5	11. 40	32.134	S 30½ W
Top of ridge	B	76.0	1. 00	76.293	S 72½ W
do. other end.	B	99.5	0. 00	99.805	N 74¾ W
Gulley beyond	B	114.0	3. 30	114.092	N 58 W
Top of knoll	B	130.0	0. 00	130.305	N 47¼ W
Gulley	B	135.0	8. 20	135.077	N 36½ W
Edge of flat	B	135.0	4. 35	134.873	N 20 W
" "	B	114.0	5. 40	113.748	N 2½ W
" "	B	100.0	7. 25	99.468	N 15¼ E
" "	B	99.0	8. 30	97.142	N 28½ E
" "	B	95.5	10. 00	92.925	N 42½ E
" "	B	107.0	9. 20	104.493	N 54 E
Middle of flat	B	71.5	15. 40	66.591	N 40 E
Knoll	B	70.0	4. 20	70.105	N 83 W
Top of ridge	L	127.0	5. 00	252.568	N 31 W
" "	B	193.0	5. 00	192.571	Ht. of do above △ 16.8m N 7½ W
Top of low pt	B	187.0	7. 20	184.258	North.
Hollow	B	187.5	5. 40	186.889	N 7¼ E
Top of bank	B	150.0	5. 20	149.686	N 23 E
Rock (a)	B	130.0	0 . 0	130.305	N 35 E
Bottom broad gully	B	94.0	12. 00	90.242	Height of △ 19.1m S 61½ E
Top of bank	B	110.0	1. 00	110.288	N 42 E
Opposite point	B	145.0	7. 30	142.835	N 85½ E
Bluff. (x)	B	176.0	2. 00	176.198	N 84 E

Bluff (x) to	Wires	Reading	Vert. ° ′	Meters	Height.	Bearing
Rock (a)	B	115.5	6. 00	115.2	12.0	S 60 3/4 W
Opp. head of bight	B	150.0	4. 05	149.9		S 73 1/2 W
Edge of bight	B	140.0	4. 20	139.9		S 79 W
" " "	B	145.0	4. 15	144.9		S 85 W
" " "	B	152.0	4. 00	151.9		West
" " flat	B	168.0	3. 00	168.1		N 82 W
" " "	B	210.0	2. 00	210.2		N 75 W
Top of hill	B	45.0	17. 55	43.1	13.8	N 10 W
Bluff	B	12.0	4. 00	12.3		S 38 1/2 W
"	B	10.0	1. 30	10.3		S 61 1/2 E
Brook	B	17.5	2. 30	17.81		S 82 E
Foot of bank	B	69.0	3. 25	69.20		N 55 1/2 E
Edge " "	B	50.0	6. 00	50.00		East
Top " "	B	135.0	12. 30	128.8	28.2	N 53 1/2 E
Shore	B	68.0	8. 45	67.5		S 68 E
Top of bluff	B	126.5	5. 20	126.1		S 81 E
Last to			° ′			
Brook	B	41.0	12. 50	39.2		West
E head small light	B	135.0	9. 00	133.6		West
Beach	B	62.0	20. 00	58.6	21.2	S 55 E
"	B	94.0	12. 55	91.9	21.0	S 48 E
"	B	128.0	9. 30	126.6	21.1	S 43 E
"	B	180.0	6. 50	179.0	21.6	S 37 E
"	B	210.0	5. 53	209.1		S 44 E
"	B	229.0	4. 58	228.4	20.0	S 53 3/4 E
"	B	240.0	4. 45	239.5	20.6	S 57 1/2 E

Same (Bluff) to	Wires	Reading	Vert. ° ′	Meters	Bearing.
Inner edge of flat	B	204.0	6. 00	203.2	S 59 1/2 E
Foot of gulley	B	157.5	7. 00	156.6	S 64 1/2 E
Inner edge flat	B	98.0	11. 45	94.3	S 61 1/4 E
" "	B	60.0	20. 00	56.7	S 60 E
Bottom gulley	B	32.0	8. 15	32.0	N 7 3/4 W
" "	B	150.0	3. 00	150.1	N 50 W
Crotch	B	72.0	5. 40	71.9	N 61 W
First ridge	B	69.0	6. 00	68.9	N 36 E
Scond ridge	B	120.0	10. 40	116.1	Height 20.4 — N 28 1/2 E
Side of hill	B	88.0	2. 00	88.2	S 84 3/4 E (?)
Last to			° ′		
Top of knoll	B	22.0	4. 00	22.2	N 51 3/4 W
gulley	B	24.0	4. 00	24.2	N 24 W
W end of ridge	B	32.0	5. 30	32.1	N 6 E
E " " "	B	37.0	0. 00	37.3	N 62 E
gulley	B	41.0	10. 00	40.7	N 86 1/2 E
Top of ridge	B	72.5	0. 00	72.8	N 75 E
Foot " "	B	106.0	7. 50	105.3	S 77 E
Station A	B	175.0	4. 12	174.8	S 64 1/2 E
Station A to			° ′		
North Rock	B	36.0	6. 36	36.0	S 2 E
Small light	B	29.0	8. 23	29.0	S 9 1/2 E
W end reef	B	170.0	2. 55	170.1	S 31 1/2 E
Beach	B	132.0	4. 12	132.0	S 59 1/2 W
Last to			° ′		
Station A	B	136.0	4. 20	136.0	N 60 1/2 E
Wharf	B	200.0	0. 00	200.3	S 25 W

Saturday Feb. 10. 1872

Weather	Barom.	Therm.			Wind
Perfectly clear	29.852	28	48	25	N W. 1.

Day absolutely clear. Noon and P. M. SSE wind very light. Evening dead calm, ice making in small harbor.

During the last two days Akutan volcano has been uttering at regular intervals loud rumblings like cannonading.

Today, being perfectly clear, puffs of smoke or steam were seen to rise at intervals of about ten minutes apparently coinciding with the noises. Makushin is said to have broken out in a new place (about the 4th of November 1871) near the foot of the volcano at the bay on the West side of Unalashka.

Mr. Bendel informs me that he started from the Kuskoquim River in July, 1870 for Unalashka via Nunivak, on the Schr. "Lizzie Sha". Being short of water and meeting a strong N W wind, the course was shaped for Unimak which was reached in four or five days. The land sighted was the point off

Destruction (or Devastation) Volcano in about Lon. W.G. 165.° A strong Westerly wind and clear weather prevailing, they beat off this point all day without making any headway or westing. The night came on, foggy and they continued to beat until 9 AM the next day, when the fog lifted for a moment and they found themselves off Akhun Bay. The wind hauled a little more northerly so that they could barely run (without beating) to the westward, and toward night the fog rising again, they proposed to run in to the Bay (of Akhun as they supposed) for shelter during the night but on examination the land proved to be that of Unalashka, off Kalekhta Cape. A dead calm ensued which prevented their working into Captain's Bay and in the night the ebb tide carried them eastward as far as the longitude of Unalga. The first stretch was made in 24 hours. On the same voyage when bound to the Kuskoquim the wind failed them when off cape Newenham, the fog shut in and

next morning, twelve hours afterward they were off Hagenmeister Island, having drifted in a southerly direction to the middle of latter.

The whole of this day is occupied in taking the following telemetric observations in Iliuliuk Harbor.

From wharf to	W.	Reading	Vert. ° ′	Meters	Bearing
North Rock	L	150.	0. 00	299.4	N. 42½ E
Point on N beach	L	103	0, 00	205.678	N 26¾ E
Upper edge Iliuliuk"	B	20	0. 00	20.3	S 8 E
"	B	31	0. 00	31.3	N 6 E
"	B	44	0. 00	44.3	N 62¼ E
"	B	60	0. 00	60.3	N 72⅜ E
"	B	81	0. 00	81.3	N 82½ E
"	B	100	0. 00	100.3	S 88 E
"	B	118	0. 00	118.3	S 82½ E
"	B	33	0. 00	33.3	S 42 E
"	B	55	1. 40	55.3	S 24¾ E
"	B	81	1. 00	81.3	S 24¾ E
"	B	98.	0. 00	98.3	S 30 E
"	B	110.	0. 00	110.3	S 39½ E
Top of bank do	B	147.5	0. 00	145.8	S 42½ E
Rocks off A K Bluff.	B	212.0	0. 00	212.3	S 50 W
Foot of bank	B	163.0	0.00	163.3	S 42 W

Wharf to	Wire	Reading	Vert. ° ′	Meters	Bearing	
Bottom of bank	B	136	0. 00	136.3	S 29½ W	
"	B	126	0. 00	126.3	S 16½ W	
"	B	124	0. 00	124.3	S 2 W	
"	B	132	0. 00	132.3	S 10 E	
"	B	160	0. 00	160.3	S 21¼ E	
"	B	183	0. 00	183.3	S 29½ E	
Brow of bank	B	167	6. 15	166.3	S 27 W	
Station K	L	128.5	4. 55	255.6	S 34½ W	
Station K to			° ′			
Bluff	B	73.	16. 33	67.6	N 21 W	
Bank	B	31	17. 50	28.4	N 56½ W	
Brow of bluff	B	30	17. 45	27.4	S 77 W	
Last to			° ′			Height
Hill	B	44.0	22. 05	38.2		S 75⅔ E
Shore	B	33.5	26. 44	27.1	13.3	N 18⅓ W
"	B	22.5	38. 00	18.0	13.8	N 43 W
"	B	23.0	38. 00	18.4	14.2	S 4½ W
"	B	33.0	24. 40	26.2	13.4	S 3 E
Point of rock (a)	B	47.5	12. 30	47.7		S 8½ W
Beach	B	142.5	5. 30	142.1	13.6	S 4½ E
"	B	190.0	9. 12	190.0	11.6	S 7½ E
Station I	B	235.0	0, 00	235.3		S 13 E
Top of ridge	L	130.0	22. 00	223.139	82.869	S 54½ E
Station I to			° ′			
Point of rock (a)	B	194.0	4. 00	193.8		N 18¼ W

Station I to	Wires	Reading	Vert. ° ′	Meters	Height	Bearing
Point of rock	B	162.0	2. 00	162.2	meters	N 15½ W
Water's edge	B	160.0	5. 45	159.5		N 18 W
Beach	B	102.5	9. 25	100.1	16.6	N 18 W
"	B	90.0	9. 40	87.5	14.9	N 29 W
"	B	78.0	11. 20	75.2	15.0	N 34½ W
"	B	47.5	19. 00	42.7	14.7	N 39 W
Water's edge	B	37.0	28.55	28.7	15.7	N 80½ W
Inner ledge rks.	B	66.0	13.50	62.4	15.5	S 80½ W
Outer " "	B	85.0	11.10	82.2	15.9	S 81¼ W
S end of the last	B	82.5	11.10	79.8	15.5	S 71 W
Station East	I.	155.0	2.10	309.141		N 81¾ W
Point on beach	B	34.0	34.00	23.7		S 52 W
Last to			° ′			
Brook	B	42.5	0. 00	42.8		S 60½ E
Shore	B	87.0	0. 00	87.3		S 47½ E
Foot of bluff	B	114.0	0. 00	114.3		S 37½ E
Shore	B	140.0	0. 00	140.3		S 32¼ E
Foot of bluff	B	157.5	0. 00	157.8		S 26½ E
Pt. rks. (b) E shore	B	171.0	0. 00	171.3		S 24 E
Station I.	B	267.0	1.20	267.2		S 36½ W
Station I. to			° ′			
Pt. rks (b) E shore	I.	115.0	2. 30	229.500		N 81½ E
Top of ridge	I.	130.0	19. 55	229.434	83.019	S 61¼ W
Station East	I.	150.0	0. 00	229.492		N 28 W
Station H	B	86.0	0. 00	86.300		N 59½ W

Station I. to	Wires	Reading	Vert. ° ′	Meters	Height	Bearing
Point of rock	B	40.0	10.28	39.7		N 24 E
Top of small bank	B	54.5	3.50	54.7		South
Last to			° ′			
Station I.	B	54.0	5.27	54.1		North
Small sky point	B	63.0	3. 00	63.2		N 22½ E
Shore	B	37.50	6.50	37.3		N 17 E
"	B	12.75	13.40	12.7		N 39½ E
Small point	B	12.5	14.25	11.75		N 68 E
Shore	B	10.5	22.15	10.00		S 53½ E
"	B	14.5	13.05	14.4		S 28 W
"	B	30.0	7.06	30.1		S 27 W
"	B	42.5	5.15	42.6		S 29¼ W
" (pt)	B	47.5	4.37	47.1		S 16½ W
" (pt)	B	90.0	2.30	90.2		S 18½ W
Station H to			° ′		meters	
Top of ridge	I.	112.5	24.10	187.020	83.785	S 42 W
Crest Amaknaks	I.	260.0	14.19	487.023	124.214	S 75 W
Small sky pt.	B	90.0	5.00	90.00	7.80	S 86 E
another " " "	B	66.0	6.15	65.90	7.20	S 85½ E
" " "	B	45.5	10.20	44.8	8.10	S 85¾ E
" " "	B	29.5	13.06	29.1	6.60	S 83⅓ E
" " "	B	17.5	24.35	16.2	7.03	North
Small point	B	41.5	9.20	41.3		N 43¾ W
" light	B	51.5	11.09	49.7		N 47¾ W
Bank	B	72.0	5.08	72.0		N 61¾ W

Station H to	Wires	Reading	Vert. ° ′	Meters	Bearing
Bank	B	110.0	3, 25	110.1	N 66¼ W
Small bight	B	131	3.00	131.1	N 67½ W
" point	B	152	2.40	152.1	N 64 W
" bight	B	209	1.55	209.2	N 76 W
Bank	B	212	1.45	212.2	N 72 W
Station G	B	225	0.00	225.3	N 74½ W
" East	B	224	0.00	224.3	N 17⅔ W
Reef	B	212	2.06	212.2	N 11¼ W
"	B	186	2.18	186.1	N 26½ W
"	B	195.	2.19	195.1	N 33½ W
"	B	195	2.19	195.1	N 33½ W
Bluff	B	225	1.58	225.2	N 38 W
Beach	B	214	1.57	214.2	N 20¾ W
"	B	220	1.56	220.2	N 28 W
"	B	212.5	2.00	212.7	N 32¼ W
Station G to			° ′		
Station East	B	215	0.00	215.3	N 44½ E
Bluff	B	138	1.20	138.3	N 30 E
"	B	131	1.10	131.3	N 6¼ W
Station West	B	180	3.48	179.9	N 14½ W
" F	B	204	0.00	204.3	N 82⅔ W
Bank	B	172	0.00	172.3	N 82 W
Bank	B	90	1.38	90.2	West
Small point	B	60.5	2.20	60.8	W ½ N
" knoll	B	87.	1.45	87.2	S 79¾ W

Station G to	Wires	Reading	Vert. ° ′	Meters	Bearing
Small point	B	54.0	2. 40	54.2	N 87 W
" bight	B	36.	4. 00	36.2	S 76½ W
Beach	B	19.	4. 15	19.3?	S 72½ W
Rocky point	B	7.	0.00	7.3	N 37 W
" "	B	9.	4.38	9.3	North
" "	B	12.	5. 47	12.2	N 60 E
Middle of bight	B	42.5	3. 17	42.7	S 75½ E
Rocky point	B	62.	2.20	62.3	East
Edge of flat	B	87.5	0.00	87.8	S 59½ E
Bottom of slope	B	84.	5.30	83.9	S 7½ W
Gulley	B	26.	0.00	26.3	S 7½ W
Station East to			° ′		
Small flat	B	53.	4.00	53.2	S 51 W
Rocky point	B	47.5	4.25	47.7	N 37½ W
N point islet	B	139.	1. 35	139.2	N 44 W
NW " "	I.	86.	0.00	171.782	N 51 W
Bluff (a)	B	104.	0.00	104.3	N 54 W
East (a) to			° ′		
SE corner islet	B	9.	8.20	9.20	N 15⅔ W
SW " "	B	22.	4.40	22.20	N 67½ W
Bight	B	47.5	2.30	47.80	N 46 W
NW corner islet	B	56.	2.05	56.30	N 51½ W
NE " "	B	40.	2.30	40.25	N 17⅔ W
Shore, 2d.	B	15.	8.20	15.20	West

Bluff (a) to	Wire	Reading	Vert. ° ′	Metres	Bearing
Shore Expd'n Island	B	25.	5. 10	25.2	S 82½ W
"	B	40.	3, 10	40.2	West
" (pt)	B	49.	2.40	49.2	N 78 W
"	B	66.	2.00	66.3	N 79½ W
"	B	85.5	1.30	85.7	N 73 W
" (pt)	B	93.	1.30	93.2	N 67½ W
2nd small islet	B	125.5	0.00	125.8	N 66½ W
Station West	B	120.	6.25	119.5	S 71 W

Sunday Feb. 11. 1872

Weather	Barom.	Thermometer.			Wind.
Cloudy.	29.678	33	47.5	27	E fresh

Monday Feb. 12. 1872

Rainy	29.432	36.5	37.5	31.5	Mod. S E

P.M. Light S E air with rain and snow.

Tuesday Feb. 13, 1872

Cloudy	29.438	33	38	31	S E light

Some snow in early A.M. P.M work at telemeter observations on the

west side of Amaknak S. but are interrupted a good deal by heavy squalls of rain and snow from the N E.
Barom. 9 P.M. 29.250

From end of trail	Wire	Reading	Vert. ° ′	Metres	Bearing
Small ridge on flat	B	84.	2. 25	84.2	N 47½ E
(x) Middle flat	B	157.	0. 00	157.3	S 67 W
From west shore			° ′		
Middle flat (x)	B	155.0	0. 00	155.3	N 81½ E
Rock	B	44.0	0. 00	44.3	S 47½ E
Foot of bluff	B	76.0	0. 00	76.3	S 41¾ E
Small hillock	B	36.5	0. 00	36.8	S 31½ E
" stream	B	65.5	3. 50	65.6	S 13¾ E
Foot of slope	B	43.5	0. 00	43.8	S 2 W
" " bluff	B	72.5	0. 00	72.8	S 14 W
"	B	112.5	0. 00	112.8	S 19⅓ W
"	B	146.0	0. 00	146.3	S 27 W
"	B	180.0	0. 00	180.3	S 34½ W
" (x)	L	102.0	0. 00	203.7	S 39½ W
Bank	B	183.0	0. 00	183.3	S 46¼ W
East to			° ′		
Beach	B	21.0	3. 20	21.3	N 34 W
Foot of bluff (x)	B	28.5	0. 00	28.8	S 13 E
Near talus do	B	44.5	0. 00	44.8	S 36½ W
" " "	B	79.0	0. 00	79.3	S 5½ W
Beach (c)	B	156.0	0. 00	156.3	S 59½ W

From beach (o) to	Wire	Reading	Vert. ° ′	Meters	Bearing
Rocks	B	53.0	0.00	53.3	N 31½ E
Foot of bluff	B	31.0	0.00	31.3	N 67 E
"	B	22.5	0.00	22.8	N 84½ E
"	B	16.0	0.00	16.3	S 66 E
"	B	15.0	0.00	15.3	S 40 E
" talus	B	15.5	0.00	15.8	S 6⅔ E (?)
Center of arch	B	17.0	0.00	17.3	S 19½ W
Foot of bluff	B	15.0	0.00	15.3	S 31 W
Rocks	B	10.0	0.00	10.3	S 47 W
Beyond arch to			° ′		
Center of arch	B	6.0	0.00	6.3	N 14 E
Water's edge	B	10.0	1.56	10.3	S 82 W
" "	B	18.0	1.00	18.3	S 32 W
Foot of cliff	B	4.0	1.20	4.3	S 12 W
Water's edge	B	64.0	0.00	64.3	S 9½ W
Last to			° ′		
Foot of cliff	B	47.5	0.00	47.8	N 19¾ E
" "	B	31.0	4.00	31.2	N 44½ E
" "	B	22.5	8.15	22.6	N 64 E
" "	B	21.0	8.00	21.1	S 84½ E
Debris " "	B	25.5	2.10	25.8	S 45½ E
Rock on beach	B	30.0	0.00	30.3	S 21 W
Last to			° ′		
Foot of debris	B	11.0	0.00	11.3	S 35½ E
Rock	B	10.0	0.00	10.3	S 59 W
Beach	B	115.0	0.00	115.3	S 26 E

Latt (beach) to	Wire	Reading	Vert. ° ′	Meters	Bearing.
Debris, talus	B	75.5	0.00	75.8	N 24½ W
"	B	48.0	0.00	48.3	N 12 W
"	B	29.0	0.00	29.3	N 13¼ E
"	B	22.0	1.40	22.3	N 47½ E
"	B	24.5	1.40	24.8	East
" bank	B	28.5	1.40	28.8	S 56 E
" "	B	59.0	1.10	59.3	S 42 E
Last to			° ′		
Foot of cliff	B	28.0	1.10	28.3	N 23¼ E
On talus	B	36.5	2.00	36.8	N 56 E
"	B	67.0	1.15	67.3	N 83½ E
"	B	100.0	2.25	100.2	East
"	B	129.0	2.00	129.2	S 83½ E
"	B	141.0	1.40	141.2	S 77½ E
"	B	136.0	1.10	136.3	S 70 E
" (beach)	B	130.0	0.00	130.3	S 64½ E
Bank	B	92.5	0.00	92.8	S 66 E
"	B	53.0	0.00	53.3	S 66 E
"	B	25.5	0.00	25.8	S 60 E
Dyke	B	170.0	0.00	170.3	S 54 E
Dyke to			° ′		
Foot of rock	B	14.5	2.00	14.8	N 22 E
End of reef	B	72.0	2.00	72.3	S 41½ E
Rock, awash	B	37.5	0.00	37.8	S 85½ W
Mat on beach	B	46.0	0.00	46.3	S 4 W

These being finished search for the supposed third rock between the Amaknak Rocks and trace a broken reef, part of which is awash, extending nearly all the way from the larger island to the smaller one. There is no safe passage between them

Wednesday Feb. 14. 1872.

Weather	Barom.	Thermometer			Wind
Stormy	29.220	28.5	38.	26	Strong N.

Cloudy with rain and snow. Schr. John Bright of Hutchinson Kohl & Co. arrives from San Francisco with mail and provisions for us. She brings no bills of lading, invoice or other list of stores consigned to us, and the letters sent down by the Hutchinson have been entirely disregarded and unanswered. The consequences are that provisions which we need have not been sent; some which we did not need have been forwarded and nothing whatever has been done about the coal.

Thursday Feb. 15. 1872

Weather	Barom.	Thermom.			Wind
Stormy	29.438	26.5	38	16	Strong N.

Cloudy, with rain and snow. Moderate in early A.M. when we are obliged to remove the tidegauge to make room for the discharge of goods on the wharf. P.M. storm increases with rain & snow squalls.

Friday, Feb. 16. 1872

Stormy	29.402	20	27	18	Strong N

Strong wind with snowsqualls, which casts from N to due W in P.M. Evening barometer unchanged.

Saturday, Feb. 17. th

Stormy	29.398	22	28	19	N N W 6

Cloudy. High wind with snowsqualls every few minutes. Night, driving snow. Barometer 11 P.M. 29.425 Wind W N W

Sunday Feb. 18 th

Stormy	29.442	18	20	16	N W 6

Heavy snowstorm. Wind varying

with squalls. Bar. unchanged at night.

Monday. Feb. 19. 1872

Weather	Barom.	Thermometer			Wind
Stormy.	29.378	16	18	15	N&W 6

Heavy snowstorm, wind varying from N to West, in evening still more furious. P.M. 11, Barom. 29.100 - Wind W. Telemetric and chain measurements to date amount to 72.233 $\frac{246}{1000}$ meters or about 38.9 geographical miles.

Tuesday Feb. 20 th

Stormy	29.062	19	20	15	Stiff NW

Stiff NW & W wind with squalls of snow. 4 P.M. Bar. 28.900, high wind and heavy snowfall. 11 P.M. Bar. 28.944 wind lulling

Wednesday Feb. 21st

Stormy	28.980	20	20	17	W very strong

Very strong W wind with blinding snow 2 P.M. wind more southerly barometer 29.024. 11 P.M. wind W, more moderate, barom. 29.100

Thursday Feb. 22nd

Snowy	29.320	19	22	18	W. mod.

Wind more moderate, west, with snowsqualls at intervals.

Friday Feb. 23. 1872

Weather	Barom.	Thermometer			Wind.
Snowy.	29.350	20	26	18	NW. lt.

Light NW wind with snow, continuing all day. Barometer, 10 P.M. 29.200

Saturday Feb. 24.

Snowy	29.125	16	18	16	NW. strong

Strong NW wind with snow, cloudy.

Memoranda.

Archimandriloff calls attention to the rocks on the east side of Akutan Pass opposite the Chica (Gull) islets, and a reef half a mile off Capse Kalekhta

On Tebenkoff's chart, Sanaga (or the island to the west of it) is wrong in longitude as bearings taken between them do not agree with those on the chart in question.

There are several islands in the Shumagin group which are not down on any chart. Also a rock to the east of Nagai in lat. 54°. 49'. 30" and lon. 157°. 38'.

on the authority of Capt. May, 45 miles from Semenoffsky 2d Amukhta Pass is 36 miles wide on Lebenkoff's chart, but A. says it is ten miles wider. The natives have reported to him the existence of a good (?) harbor on Semisopochnoi Island. Hennig however says they report a poor harbor there, and also that the passage to it is rocky with dangerous tideripps. Archimandritoff has heard rumors of a reef extending from the NE end of Umnak to Bogoslov volcano, on which the sea breaks in rough weather, but he has no definite information. Hennig says there is no such reef except a short one extending a few miles northward from Umnak, he has passed close to both shores in good weather and could find no bottom with two codlines (50-60 fms).

Sunday Feb. 25, 1872

Weather	Barom.	Thermometer			Winds
Half cloudy	29.330	16	26	13.5	Light S

About 9 A. M. the tide being nearly high and rapidly rising, with a very light S wind (also freshening)

a stream of ice cakes from Captains (formed during the cold Northerly snow storms prevalent of late) poured in to Illiliuk Harbor through the strait of Amaknak, at the rate of four knots an hour completely filling the harbor, within an hour, though it had been perfectly free from ice, before. The low temperature of the air caused the cakes to freeze together (thus preventing their exit with the falling tide) and by night a very thick and strong coat of ice covered the whole of Illiliuk Harbor. As an illustration of the tidal currents here, it may be mentioned that none of the ice was able to pass out through the north entrance, where the water simply appeared to "back up," as there was no concavity in the line of floating ice at that mouth such as must have resulted, had there been any tidal influx there. The only clear space in the whole harbor was at the mouth of the

brook and a narrow strip to the NE of it where the fresh water passed out, on the surface.

Monday Feb. 26. 1872

Weather	Barom	Thermometer			Wind
Clear	29.522	18	36	18	S moderate

Sky with a few passing clouds. Being solidly frozen in, so as to prevent the passage of the boats without great labor, we devote the day to equal altitude observations of the sun for time, succeeding very well. Evening clear, calm, Bar. 29.624.

Tuesday, Feb. 27, 1872

Snowy	29.550	24	32	24	S E light

Light snowfall, cloudy, small harbor ice bound;- later, snow turns into rain. 9 P.M. Barometer 29.480 wind fresh from E S E.

Wednesday Feb. 28

Stormy	29.475	31	39	28	ENE & NW sq.

Early A.M. half clear with fresh ENE wind. At 8.30 A.M. the wind freshens

and becomes squally with overcast sky. Later rain and snow. Afterwards wind goes round to N squally, and finally to NW clearing off a good deal. 18 P.M. Bar. 29.388. Wind N with wet snow.

Thursday Feb. 29.

Weather	Barom.	Thermom.			Wind.
Stormy	29.300	35	35	33	N. strong

Strong north wind, afterward NW with snow and a little rain. Later very stiff north wind Bar. 29.250

Friday March. 1. 1872

cloudy	29.354	33	38	27	NW very strong

Ice breaking up somewhat, wind very strong but steady. 10 P.M. bar. 29.150 Up to Mar. 1, we have been in port 159 days, or 136 working days deducting Sundays. On fifty three days we were able to do work, but deducting the parts of these which were unfavorable, there were 38.5 days work done, being about one out of 3.53 working days or thirty five and one third per cent.

Saturday Mar. 2. 72

Weather	Barom	Thermom.			Wind
Stormy	29.182	31	36	31	Strong NW

Driving snowstorm, ice breaking up. Evening, snowing & blowing very hard. Bar. unchanged.

Sunday Mar. 3. 1872.

Cloudy	29.498	29	29	25	Fresh NW

Half melted snow, falling, nearly all day

Monday Mar. 4th

Cloudy	29.370	22	25	20	NW 6

Cloudy, with very strong NW wind, moderating, with snow toward evening. At 10 P.M. barometer stood at 29.220

Tuesday March 5th

Cloudy	29.094	27	32	27	NW 5

Strong NW wind with light snow. P.M. wind goes to the W. 10 P.M. bar. reads. 29.050

Wednesday March 6th

Half cloudy	29.070	20	42	20	W. ESE

Foggy. P.M. wind E. Spend afternoon taking

angles from Station D. Evening, 8h 30'. bar. falls to 28.800, & wind shifts to NE & NW.

Thursday, March 7. 1872

Weather	Barom	Thermometer			Wind
Cloudy	28.600	32	42	30	Fresh NW

Slight snowfall. Wind shifting, from NW to SW, all day. 10 P.M. wind west, light, sky clear. bar. 28.775

Friday March 8th

Snowy	28.900	36	42	36	S & SW 4

Cloudy, snowing at intervals. 10 P.M. wind Sby E, moderate, sky clear. Bar. 29.075

Saturday, March 9.

Half clear	29.184	35	49	32	S 2

Morning wind light, southerly, variable, with with occasional fresh puffs. Sky half clear. Spend day taking angles from Stations A.B. & K, Klinkit Harbor. P.M. wind SE, light, with one snowsquall 10 P.M. sky clear, barometer 29.420.

Sunday March 10th

Stormy	29.488	32	35	32	SE 3-6

A.M. cloudy, fresh S wind. At 4 P.M. a heavy SE storm, with rain, comes on and lasts during the remainder of the day. Ice goes out of inner harbor
Bar. 29.300

Monday, March 11. 1872

Weather	Barom	Thermometer			Wind
Stormy	29.246	38	38	35	SE squally

Storm moderates in A.M. with heavy rain; later, less wind with rain and hail at intervals during P.M. 10 P.M. wind S by E.
Bar. 29.320

Tuesday March 12th

Cloudy	29.382	38	48	37	S & E light

Cloudy with passing showers. Wind light SE, stronger in puffs. P.M. S to SE, half clear with occasional snowsqualls. Work on the E side of Amaknak Id. in the afternoon and obtain the following telemeter observations, though frequently interrupted by snowsqualls, there and in Illiulik Harbor. At 9 P.M. bar. 29.840.

From △ B to	Wire	Reading	Vert ° ′	Meters	Bearing
Outermost rock of reef	B	76	6.11	75.9	S 43 2/3 E
Outer Rock	B	85	5.28	85.0	S 7 E
" "	B	92.5	3.50	92.6	East
Rocks off △ C	B	140.0	3.12	140.0	S 47 1/4 W
△ D	L	205.0	0.48	409.0	S 47 1/4 W
△ A to			° ′		
Beach	B	112	5.15	111.8	N 45 2/3 E
Last to			° ′		
Foot of N. Rock	B	135.	0.0	135.3	S 34 1/4 W
reef off do	B	132.	0.0	132.3	S 29 1/4 W
outer rock of last reef		.	.	.	S 22 1/2 W
bight in head	B	28.5	1.15	28.8	S 63 3/4 W
Reef	B	34.0	0.0	34.3	S 87 1/2 E
Large rock do	B	32.0	0.0	32.3	N 68 1/2 E
Hollow in bank	B	19.0	1.15	19.3	N 11 W
Water's edge	B	22.5	1.10	22.8	N 14 1/4 E
Beach	B	70.0	0.0	70.3	N 6 1/4 W
" "	B	127.0	0.0	127.3	N 4 W
" "	B	210.0	0.0	210.3	N 2 1/4 E
Last to			° ′		
Beach	B	56.	0.0	56.3	N 15 W
"	B	125.	0.0	125.3	N 20 E
"	B	216	0.0	216.3	N 22 2/3 E
Outer end next reef		.	.	.	N 26 E
" " last "		.	.	.	S 11 1/2 E

Last (beach) to	Wire	Reading	Vert ° '	Meters	Bearing
Bank	B	7.5	10.10	7.7	n 58¼ W
Last to			° '		
Edge of flat: Sand	B	195.	0. 0	195.3	S 22¾ W
" Hill foot	B	155	0. 0	155.3	S 87½ W
" broad gully	B	151	0. 0	151.3	S 57½ W
" Hill foot	B	146	0. 0	146.3	S 70 W
" gully	B	155	0. 0	155.3	S 81 W
" Knoll foot	B	137	0. 0	137.3	S 88¼ W
" Hill foot	B	144	0. 0	144.3	n 77¼ W
" Pt of "	B	152	0. 0		n 68¼ W
" light-beyond	B	182.5	0. 0		n 68¼ W
" bank foot	B	197.0	0. 0		n 63 W
" gully	B	202.5	0. 0		n 54⅓ W
" Hill foot	B	160.0	0. 0		n 51 W
" "	B	100.0	0. 0		n 50¼ W
" "	B	80.0	0. 0		n 31½ W
" "	B	75.0	0. 0		n 6½ W
Bank n end flat	B	96.0	0. 0		n 14½ E
Edge of bank	B	40.0	1. 10		n 19 E
Right in beach	B	137.5	0. 0		n 19 E
Beach. foot of large bk	B	190.0	0. 0		n 22½ E
Last to			° '		
Reef	B	38	0. 0.	38.3	n 83½ E
Outer end, another of same		.	.	.	n 28 E
Isolated Rock bears		.	.	.	n 21¼ E

Same to	Wire	Reading	Vert. ° '	Meters	Bearing
Beach	B	28.0	0. 0	28.3	n 8½ E
"	B	69.0	0. 0	69.3	n 3 E
"	B	121.5	0. 0	121.8	North
"	B	159.0	0. 0	159.3	n 6 E
Last to			° '		
Foot of gully	B	72	1. 15	72.3	S 18⅓ W
Rocks	B	12	0. 0	12.3	S 19 E
reef	B	30	0. 0	30.3	S 73½ E
water's edge	B	14	0. 0	14.3	n 21 E
(y) beach	B	76	0. 0	76.3	n 8¼ W
(x) outer rocks bear		.	.	.	East
Isolated rock "		.	.	.	n 31¼ E
Last (y) to			° '		
Gully foot	B	18	2. 45	18.3	n 42 W
" n top	B	53	16. 55	48.8	n 60⅓ W
(b) " next " "	B	114	11. 05	110.1	n 22½ W
Rocky Pt. Δ	B	176	8. 32	{Dist. 172.4 Ht. 28.8	n ½ W
beach bight	B	54	0. 0	54.3	n 20 W
" (foot of b)	B	75	0. 0	75.3	n 13¼ W
" rocky	B	126	0. 0	126.3	n 2 E
" "	B	146	0. 0	146.3	n 9½ E
Pt. of rocks	B	172	0. 0	172.3	n 9½ E
Last to					
Rocks	B	43	0. 0	43.3	n 28 E
Extr. pt of bluff foot	B	30	2. 0	30.3	n 25¼ W

Same to	Wire	Reading	Vert. ° ′	Meters	Bearing
Isolated Rock bears	.	.	.	.	S 75° E
Reef (x) beyond	.	.	.	.	S 55° W
l.w. rocky beach	B	38.	1.00	38.3	N 20¾ W
Last to			° ′		
Rocky beach l.w.	B	44	1.00	44.3	N 81¼ W
Last to					
Rocky shore	B	53	1.16	53.3	S 47½ W
" "	B	160	0.00	160.3	S 55° W
" "	B	220	0.00	220.3	S 62½ W
Last to			° ′		
Rocky shore	B	53	0.0	53.3	N 80 W
" " "	B	127	0.0	127.3	N 78¼ W
" " "	B	185	0.0	185.3	N 76½ W
" " "	B	235	0.0	235.3	N 74½ W
Last to			° ′		
Bluff foot	B	16½	5.30	16.7	S
Shore	B	23	0.0	23.3	S 34 W
"	B	41	0.0	41.3	S 53¼ W
"	B	61	0.0	61.3	S 43½ W
"	B	92	0.0	92.3	W
"	B	124	0.0	124.3	N 82 W
"	B	165	0.0	165.3	N 74 W
"	B	195	0.0	195.3	N 70½ W
"	B	238	0.0	238.3	N 66 W
Round Top Δ bears	.	.	.	.	N 68¼ W

Wednesday Mar. 13. 72

Weather	Barom	Thermometer			Wind
Stormy	29.940	35	38	32	SE 5

Cloudy, squally, threatening rain. Wind fresh SE. P.M. although it blows very hard, I attempt telemeter obs. on the SW shore of Amaknak Id. but am driven in by a storm of half melted snow. The storm increases in fury toward evening, varying from NE to SE, afterward with rain. 10. P.M. bar. 29.540. Succeed in getting the following obs.

On beach to	Wires	Reading	Vert. ° ′	Meters	Bearing
Dyke.	B	72	0.0	72.3	N 40 W
Edge of flat	B	30	0.0	30.3	N 8½ W
" "	B	23	0.0	23.3	N 30 E
" (dyke)	B	34	0.0	34.3	East
Low w. mark	B	9	2.80	9.3	S 17 W
Top of bank	B	53	16.20	49.1	N 53 E
Crest high hill	L	142.5	18.18	{Dist: 256.4 Height: 84.7}	N 54½ E
Upper edge beach	B	39.0	2.00	39.2	S 70 E
" " "	B	72.5	0.00	72.8	S 73 E
" " "	B	114.0	0.00	114.3	S 74½ E
Brook	B	192.5	0.00	192.8	S 74½ E

Brook to	Wires	Reading	Vert. ° ′	meters	Bearing
Foot of bank	B	27.	1.40	27.3	N 8 W
Edge of beach	B	43.	0.0	43.3	S 63 E
" " "	B	94.	0.0	94.3	S 54 E
" " "	B	110.0	0.0	110.3	S 43 E
Rocky Point	B	102.5	0.0	102.8	S 35 E
Extr. end of do.	B	109.0	0.0	109.3	S 29 E

Thursday Mar. 14. 1872

Weather	Barom	Thermometer			Wind
Stormy	29.476	36	40	36	SE squally

Cloudy, rainy & squally, Wind SE late in P.M. nearly S. with more moderate weather. Bar. 10. P.M. 29.620
According to Captain Chapman, in 1868 a whaling vessel, stove in the ice off Cape St. Thaddeus, drifted ashore in Seniavine strait, shortly after the ice passed out of the latter Also in 1870-71 the water between Plover Bay and St. Lawrence Id burst its bands of ice late in May and by the middle of June a vessel might have been managed there if she had been

able to force her way through the drifting ice to the southward. The ice on the west side of St-Lawrence is open before that to the east and S E of it.

Friday, Mar. 15. 1872

Weather	Barom.	Thermometer			Wind.
Cloudy	29.800	38	48	36	S fresh.

Passing clouds with light short snowflurries occasionally.
Busy with telemetric observations on south Amaknak Id. all day. P.M. cloudy, wind SSE. Barometer 8 P.M. 29.810.

St. on S Amaknak	Wires	Reading	Vert. ° ′	meters	Bearing
Beach	B	18.0	0.0	18.3	N 57½ W
"	B	54.5	0.0	54.8	N 59½ W
"	B	81.0	0.0	81.3	N 53½ W
"	B	128.0	0.0	128.3	N 53½ W
"	B	172.5	0.0	172.8	N 46½ W
"	B	204.0	0.0	204.3	N 35½ W
Rocky point	B	242.5	0.0	242.8	N 20 W
Beach	B	277.0	0.0	277.3	N 16 W
Beyond last Sc			° ′		
Last	B	155.	0.0	155.3	S 50¼ W

Same to	Wires	Reading	Vert. ° ′	Meters	Bearing
Beach	B	127.0	0.0	127.3	S 53½ W
"	B	88.0	0.0	88.3	S 55½ W
Small pt.	B	60.0	0.0	60.3	S 53 W
Beach	B	54.0	0.0	54.3	S 58½ W
"	B	27.5	0.0	27.8	S 61¾ W
Small rock	B	5.0	0.0	5.3	S 9 W
Water's edge	B	6.5	0.0	6.8	N 19 E
Rocky point	B	27.5	0.0	27.8	N 29¾ E
Beyond last to			° ′		
Last	B	13.0	0.0	13.3	S 16 E
Small bight	B	9.5	0.0	9.8	N 29¼ W
" pt.	B	15.5	0.0	15.8	N 6¼ W
" bight	B	36.0	0.0	36.3	N 12 W
Rocky shore	B	59.0	0.0	59.3	N 3½ W
Small pt.	B	68.0	0.0	68.3	N 2 E
Bight.	B	86.0	0.0	86.3	N ½ E
"	B	101.0	0.0	101.3	N ½ E
Rocky shore	B	135.5	0.0	135.8	N 7 E
"	B	159.0	0.0	159.3	N 14 E
"	B	179.0	0.0	179.3	N 20½ E
" pt.	B	209.0	0.0	209.3	N 25 E
" shore	B	250.0	0.0	250.3	N 25½ E
"	L	153.0	0.0	805.4	N 28 E
Flat rock	L	162.5	0.0	324.3	N 29 E
" "	L	163.0	0.0	325.3	N 29¼ E
Top of hill	B	49.0	23.47	41.3	N 77 W

Last to	Wires	Reading	Vert. ° ′	Meters	Bearing
Gulley	B	49	0.0	49.3	S 78½ W
Top of hill	B	92	17.49	83.7	N 82 W
Gulley	B	90	12.14	86.3	N 62½ W
Ridge	B	140	21.20	121.8	N 37 W
Knob	B	167½	18.45	150.5	N 12 W
Hilltop	B	140	17.00	128.3	N 3 W
Small bluff	B	61	12.10	58.6	N 29½ E
Gulley	B	45	9.49	44.0	N 14 E
Bank	B	19	3.10	19.3	N 26 E
Knoll	B	37½	1.46	37.8	S 43 W
Last to			° ′		
Small bluff	B	48.0	11.45	46.3	S 75½ E
" "	B	52.5	11.14	50.8	S 5 W
Hollow	B	12.25	12.44	12.2	S 54 W
Knoll	B	24.5	3.30	24.75	S 51½ W
Hollow	B	39.0	5.00	39.2	S 51½ W
Knoll	B	65.0	1.09	65.3	S 61 W
Bluff	B	165.0	1.29	165.25	S 31 W
Last to			° ′		
Mouth of brook	B	62.	11.38	59.8	N 41½ E
Bank	B	65.	3.30	65.15	N 5 E
"	B	64.	5.15	64.0	N 16 W
Hill	B	92.5	7.40	92.0	N 41 W
Hollow	B	97.	3.47	97.1	N 59½ W
Hill	B	130.	10.38	125.9	N 79 W

Same to	Wires	Reading	Vert.	Meters	Bearing
			° ′		
Hollow	B	140	3. 34	140.0	S 78 W
Hill	B	183	6.38	180.9	S 73½ W
Hollow	B	135	1.35	135.2	S 71 W
Hill	B	152.5	6.13	151.9	S 38½ W
Hollow	B	77.	0.00	77.3	S 54 W
Hill	B	43.	1.00	43.3	S 47¼ W
Bluff	B	35.	6.00	35.1	S 16 W
Gulley	B	21.	12.25	20.8	S 24½ W
"	B	41.	0.00	41.3	S 68 W
"	B	30.	0.00	30.3	S 85 W
Hill	B	135.	0.00	135.3	S 84 W
Gulley	B	175.	1.30	175.25	S 36 W
Knob	B	230	4.00	229.70	S 36 W
Bluff	B	108	3.45	108.05	S 23½ W
			° ′		
SE cor. Umaknak	S.				
First A of this A.M.	B	98.0	0. 0	98.3	N 20 W
Reef	B	95.5	0. 0	95.8	N ½ W
Foot of cliff	B	65.0	0. 0	65.3	N 24 W
Beach	B	44.0	0. 0	44.3	N 38¼ W
"	B	16.0	0. 0	16.3	N 58 W
Pt of rocks	B	6.0	2. 00	6.3	S 73½ W
Bluff	B	41.0	27. 00	32.2	N 83 W
"	B	50.0	26. 30	40.3	N 63 W
"	B	76.0	16. 40	72.2	N 46 W
"	B	74.0	16. 00	68.7	N 30 W

Same to	Wires	Reading	Vert.	Meters	Bearing
			° ′		
Bluff	B	46.00	14. 20	43.5	S 45 W
Rocks	B	7.25	0. 00	7.55	S 53½ E
Small bight	B	26.00	0. 00	26.30	S 33 W
Rocky shore	B	35.00	0. 00	35.30	S 14 W
" point	B	38.50	0. 00	38.80	S 5½ E
" "	B	37.00	0. 00	37.30	S 25 W
			° ′		
S end of Island					
To last △	B	64.5	2. 00	64.8	N 54⅔ E
Water's edge	B	56.0	1. 00	56.3	N 65 E
" "	B	36.0	1. 10	36.3	N 62½ E
Rocks	B	65.0	0. 00	65.3	N 67½ E
Foot of bluff	B	7.5	0. 00	7.8	N 16½ E
High water mark	B	23.0	0. 00	23.3	N 37 W
" " "	B	47.5	0. 00	47.8	N 37 W
" " "	B	92.0	0. 00	92.3	N 46 W
" " "	B	130.0	0. 00	130.3	N 51 W
" " "	B	157.5	0. 00	157.8	N 58⅔ W
Rocky point	B	186.0	0. 00	186.3	N 60 W
			° ′		
Last to					
Water's edge	B	18.0	0. 0	18.3	S 51 W
High water mark	B	25.5	0. 0	25.8	N 40½ W
" " "	B	48.0	0. 0	48.3	N 34½ W
Water's edge	B	98.0	0. 0	98.3	N 34½ W
			° ′		
Beyond last to					
Last	B	155.5	0. 0	155.8	S 31¾ E

Same to	Wires	Reading	Vert. ° ′	Meters	Bearing
Beach	B	119.0	0.0	119.3	S 44 E
"	B	92.0	0.0	92.3	S 53 E
"	B	50.0	0.0	50.3	S 58½ E
Rocky point	B	42.5	2.45	42.8	N 65-½ W
Beyond Last to			° ′		
Last △	B	65.50	1.05	65.80	S 39 E
Highwater mark	B	35.50	1.00	35.80	S 49½ E
" "	B	10.25	1.00	10.55	S 64½ E
" "	B	19.00	1.00	19.30	N 17⅓ W
" "	B	52.50	1.00	52.80	N 27 W
Rock	B	57.50	0.00	57.80	N 36½ W
mouth of brook	B	172.00	0.25	172.30	N 32 W
gulch	B	50.50	10.20	50.00	S 62½ E
cliff	B	62.00	14.00	58.70	S 50 E
Same gulch	B	52.50	10.37	51.80	S 62½ E
Last to			° ′		
Top of cliff	B	38	20.47	33.5	N 38¼ W
Hollow	B	30	14.10	29.4	N 47 E
Hill	B	28	17.33	25.8	N 52 E
Crotch	B	70	13.42	66.4	N 68 E
Ridge	B	74	15.22	69.1	S 79 E
Beyond last to			° ′		
Last	B	39.5	1.20	39.8	N 86 W
Gulley	B	44.0	23.25	37.4	N 61¼ E
"	B	17.0	25.10	14.2	S 61½ E
"	B	42.5	21.26	37.1	S 18½ W
Edge of cliff	B	63.0	6.05	63.0	S 19½ E
Ridge	B	47.5	2.51	47.7	S 45½ E
Last to			° ′		
Brow of hill	B	40	8.20	39.9	S 76⅔ E
Crotch	B	29	8.03	29.0	S 25- W

Same to	Wires	Reading	Vert. ° ′	Meters	Bearing
Pt. on cliff	B	40.0	4.50	40.1	S 14¼ W
Bight	B	47.5	1.36	47.8	S 1½ E
Next point	B	54.5-	1.56 2.10	54.8	S 2½ W
Gulley	B	69.0	0.00	69.3	S 6 E
Pt on cliff	B	84.0	0.00	84.3	S 4 W
Ridge	B	102.0	1.00	102.3	S 15½ E
Last to			° ′		
Pt. on cliff	B	20.75-	0. 0	21.05-	W
" "	B	20.00	0. 0	20.30	S 60¾ W
Gulley	B	20.75-	0. 0	21.05-	S 34½ W
Pt. of cliff	B	34.00	0. 0	34.30	S 33 W
Bight beyond	B	34.00	0. 0	34.30	S 20 W
Pt. of cliff	B	38.00	1. 30	38.30	S 24 W
Bight	B	43.50	0. 0	43.80	S 10½ W
Pt. of cliff	B	54.00	0. 0	54.30	S 20 E
Hollow	B	49.00	6.34	48.90	S 25½ E
"	B	28.00	16.00	26.20	S 51½ E
"	B	38.00	13. 00	55.40	S 88 E
Ridge	B	87.50	3.06	87.70	S 37½ E
Last to			° ′		
Edge of cliff	B	57.0	1.38	57.3	S 81 W
" " "	B	42.5-	4.15-	42.7	S 55 W
Foot of bank	B	47.0	14.00	44.5-	S 21½ W
Edge of bluff	B	47.0	10.30	46.5-	S 8¼ W
" " "	B	49.0	13.40	43.1	S 12 E

Same to	Wire	Reading	Vert. ° ′	Meters	Bearing
Edge of lake	B	46.0	15.23	43.1	S 28½ E
" " "	B	60.0	11.19	58.0	S 65 E
" " "	B	77.0	9.45	75.1	S 79½ E
Corner " "	B	94.0	7.18	93.5	East
Edge " "	B	88.0	7.40	87.5	N 77½ E
Ridge	B	92.5	0.00	92.8	N 68½ E
Last to			° ′		
Edge of lake	B	57.0	13.24	54.2	North
" " "	B	58.0	13.24	55.3	N 25¾ W
" " "	B	57.0	13.37	54.1	N 46¾ W
" " "	B	78.0	13.27	74.1	N 78½ W
Corner " "	B	73.0	8.00	72.4	N 87½ W
" " "	B	72.0	9.00	71.4	N 80¾ W
Edge of bluff	B	39.0	7.00	39.0	S 30 W
Top of hill	B	24.5	4.49	24.7	S 51½ E

Saturday, Mar. 16, 1872

Weather	Barom.	Thermometer			Bearing
Fair	29.720	36	49	36	S very light

Day fair with passing clouds. A. M. Observations for time. Correlate benchmarks by levelling from our staff to Davidson's bench mark on the church, with the theodolite. This benchmark is

above level of zero on our tide gauge staff 26 feet 4 inches. Above our benchmark thirteen feet 4 inches and above our plane of reference 22 ft. 4 in. This can be regarded as approximate only as the theodolite has no striding level. Noon, heavy snowsquall. P. M. telemetric observation on Shinlink beach

Station A to	Wire	Reading	Vert ° ′	Meters	Bearing
Beach	B	265.0	2.26	265.1	S 29 W
Last to			° ′		
SW corner reef	B	240	0.0	240.3	N 70 E
W end reef	B	232	0.0	232.3	N 68 E
S end reef	I.	183	0.02	365.2	N 77 E
Beach	B	74	0.0	74.3	S 50 E
"	B	146	0.0	146.3	S 50 E
"	B	196	0.0	196.3	S 56 E
"	B	233	0.0	233.3	S 56 E
Beyond last to			° ′		
Last	B	150.0	0.0	150.3	N 66½ W
Beach	B	90.0	0.0	90.3	N 65 W
"	B	48.5	0.0	48.8	N 65 W
"	B	96.0	0.0	96.3	S 73 E
"	B	156.0	0.0	156.3	S 73¼ E
"	B	213.0	0.0	213.3	S 73¼ E

Beyond last to	Wire	Reading	Vert. ° ′	Meters	Bearing
Last	B	168.0	0. 0	168.3	N 82 W
Beach	B	63.5	0. 0	63.8	N 83¼ W
"	B	54.0	0. 0	54.3	S 82½ W
"	B	124.0	0. 0	124.3	S 84½ W
"	B	214.0	0. 0	214.3	S 87½ E
Beyond last to			0 ′		
Last	B	127.5	0. 30	127.8	S 86⅓ W
Beach	B	38.25	0. 40	38.55	S 81¼ W
"	B	60.5	0. 50	60.8	N 80¼ E
"	B	111.5	0. 45	111.8	N 76¼ E
"	B	157.0	0. 30	157.3	N 74 E
"	B	206.0	0. 0	206.3	N 69 E
"	B	246.0	0. 0	246.3	N 64 E
"	L	155.0	0. 0	309.4	N 59¾ E
Albatross △	L	167.0	0. 0	333.4	N 60¾ E

Later, return to altitude observations which are interrupted by clouds. Day closes cloudy. P.M. 9 o'clock. barometer 29.700 wind fresh SE.

Sunday March 17.

Weather	Barom	Thermometer			Wind.
Cloudy	29.772	36	47	34	SE light

At noon strong NW wind. 10 P.M. barometer

29.840, wind SW squally.

Monday Mar. 18.

Weather	Barom.	Thermometer			Wind
Cloudy	29.720	34	37	34	SE strong

Wind light E in a.m. freshening toward noon. P.M. SE squally, very strong. Spend day finishing angles in small harbor of Unalaska. Evening snow and rain with strong SE wind.

Tuesday March 19.

Weather	Barom.	Thermometer			Wind
Clear	29.175	38	59	38	SE by S strong

Day fine, wind moderating early. Observations for time, ⊙'s equal altitudes A.M. & P.M. Late in P.M. cloudy, nearly calm. 11 P.M. barom. 29.280, and heavy rain.

Wednesday Mar. 20

Weather	Barom.	Thermometer			Wind
Rainy	29.340	38	45	38	nearly calm

Cloudy and rainy in A.M. P.M. cloudy with light showers. Take up the minimum and maximum thermometers buried two feet below the surface Feb. 9. 1872 and find a uniform temperature of 33° Fah for the earth since then. P.M. bar. 29.474

Thursday Mar. 21. 1872

Weather	Barom	Thermom.			Wind.
Clear	29.450	33	49	32	Light & variable

Morning cloudy, clears at 10. A.M.
Day very fine; wind very light and variable or calm. Observations of sun for time and getting vessel ready for sea.

Friday Mar. 22. 1872

Stormy	28.972	34	38	32	E squally

Raining and snowing hard with squally E wind in A.M. Moderates in P.M. but continues squally all day. Bar. in evening, 28.800. Later observations indicate a great gale from the south out side of Bering Sea, south of the islands

Saturday Mar. 23.

Cloudy	29.150	38	42	37	SW & W light

Put to sea at 7.30 A.M. on a voyage to Unga Islands for coal

Notes.
Reef off Kalekhta Pt bearing east is in one with the NE end of Unalga 2d.
Priest Rock bearing south, reef bears SW.

Kalekhta Portage from Captain's Bay bears ENE, concavity S. The east head of Kalekhta Bay, the Portage & the W head of Constantine Bay, bear SW by W, half W from Unalga Pass.
Two heads of Kalekhta Bay, in one bear west.
A rock exists, out of water off the small island SE of Spirkins, beyond the pillar, and is not down on the charts.
Go through Unalga Pass, delayed by adverse tide, 10 P.M. Bar. 29.580.

Sunday Mar. 24. 1872.

Weather	Barom	Thermometer			Wind
Cloudy	29.520	37	42	37	N & NE fresh

The current sets us twenty five miles to the S & W. P.M. clear & fine. Evening cloudy and sea rough. Current observations commenced and carried on without cessation during voyage.
Evening barometer 29.480

Monday Mar. 25

Stormy	29.000	37	39	37	NE Sale

NE gale, with snow, hail, & heavy sea
Hove to all day & evening.

Tuesday Mar. 26. 1872.

Weather	Barom	Thermometer			Wind
Clear	29.150	40	42	40	calm

Clears early in A.M. light NE wind & high sea. Almost a dead calm about noon, nearly clear. Calm continues until eleven P.M. sea still rough.

Wednesday Mar. 27th

cloudy	29.300	40	54	40	S light

Wind A.M. very light, southerly. vessel hardly making headway. Fair. P.M. fresh breeze from NE; at midnight obliged to heave the vessel to.

Thursday, March 28th

Stormy	29.100	40	42	40	NE gale

Hove to all day. Wind hauls to the south and east in the evening. make sail under double reefs.

Friday March 29. 1872

Weather	Barom	Thermometer			Wind
Half fair	29.050	42	46	40	SE fresh

Stand in under single reefs until wind freshens and it comes on thick and raining. Then stand off S by W to avoid running in to the land in case of a south easter. At 2 P.M sight land bearing NW and stand toward it but see little until 3.30 P.M. when it clears, and we see two small islands, rocks or tops of peaks, bearing WNW. Cannot identify them and taking three sets of observations, find that we have been swept by the current more than sixty miles to the westward of our reckoning P.M. pretty clear but clouds up after sunset. Barometer sticks at 29.075 up to 7 P.M. Remain on deck all night, on the lookout for land.

Saturday Mar. 30

Cloudy	29.050	40	44	40	SSE strong

Day cloudy with snow squalls and high southerly wind. Later, stormy. Sight SE point of Unga about 2 A.M. and, shortly afterward, Nagai. Beat until 4.30 A.M. and then stand in by Delarof Harbor, past Unga, West of Popoff Island, through the narrow passage between that island and Unga. Stood into Coal Harbor, Unga about 11 A.M and beat into New Harbor, anchoring in 8 fms. mud, about 2 P.M. The west shore of Coal Harbor has washed away, and the cliffs fallen down, about two hundred feet west since 1865, and that side is now very shoal and unsafe. There are rocks out of water where in 1865 there were five fathoms water. The sand spit from Round Island makes off nearly half way to the opposite point on the SE shore and the water west of that line is shoal.

Sunday Mar. 31. 1872

Weather	Barom	Thermometer			Wind
Cloudy	29.200	42	42	40	S strong.

The bad behavior of the vessel in a seaway rendering it necessary, I call a consultation of the officers and decide that the proposed voyage to the westward (or to any region where the vessel would be placed on a lee shore without an adjacent harbor) is inadvisable on account of the defects of the vessel in working to windward and the great risk to life and property which would thereby be incurred. Decide to do as much as possible in Unalashka and spend the rest of the season in the Shumagins.

P. M. windy and cloudy. Barometer unchanged.

Further notes, (March 30) on the Hydrography about Unga Island.

The shore line of Coal Harbor is very incorrectly laid down and a new chart is needed. The reefs laid down as "weedy shoals" on the chart, come out of water

in low tides, for at least a foot.
In the north end of the strait between Unga and Popoff Islands after passing the sand spit, the only safe channel is in the range between the west end of the spit and the west end of Range Island at the north end of the strait. There is a reef on each side. After passing the point from which the Unga reef makes out, a little deeper water will be obtained by shearing a little to the westward still steering for the west end of Range Island and thus clearing the Olga reef, on which two vessels have struck at one time. The least water in this channel is five and a half fathoms at low tide. A small harbor is formed by the sand spit on the Popoff Island side

Means.

Thermometer.				
1872.	Jan.	Feb.	Mar.	3 mos.
Mean tem.	29.00	29,25	37.75	32.00
Max. "	45.00	48.00	59.00	59.00
Min."	13.00	13.50	20.00	13.00
Range.	32.00	34.50	39.00	46.00
Surface seawater.				
Mean Tem.	35.40	35.30	34.60	35.10
Max. "	37.00	39.00	37.00	39.00
Min. "	32.00	32.00	32.00	32.00
Range.	5.00	7.00	5.00	7.00
Barometer.				
Mean height	29.382	29.465	29.304	29.383
Max. "	30.100	30.060	29.940	30.100
Min. "	28.730	28.900	28.600	28.600
Range.	1.370	1.160	1.340	1.500
Weather.				
Clear & fine d.	1.00	2.0	5.00	8.00
Cloudy & fair.	6.00	4.5	4.50	15.00
Stormy.	24.00	22.5	12.50	59.00
Day's work done	2.75	3.0	7.25	13.00

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